

Notes on *Hibbertia* (Dilleniaceae). 6. Three new species and a new combination in the *H. stricta* complex from South Australia and Victoria

H.R. Toelken

State Herbarium of South Australia, P.O. Box 2732, Kent Town, South Australia 5071
E-mail: hellmut.toelken@sa.gov.au

Abstract

Two new species, *Hibbertia devitata* Toelken and *H. setifera* Toelken, are segregated from the *H. stricta* (R.Br. ex DC.) F.Muell. complex. *H. glebosa* Toelken is newly described from the *H. australis* N.A.Wakef. complex and the new combination *H. glebosa* subsp. *oblonga* (J.M.Black) Toelken is made. All three species have strongly revolute leaf margins. The many local variants of *H. devitata*, which is a common and widespread species, mainly in South Australia, are described in detail, and some of the convoluted nomenclature of the *H. stricta* complex is discussed.

A key is provided to the South Australian species and subspecies that would have been included in Bentham's concept of *H. stricta*.

Keywords: Dilleniaceae, *Hibbertia*, nomenclature, taxonomy, southern Australia, South Australia, Victoria.

Introduction

Bentham (1863) commented that *H. stricta* (R.Br. ex DC.) F.Muell. "is a very variable species", and he included at least six previously recognised species as well as specimens of many taxa undescribed at the time, in this large complex. The need to recognise a wider range of taxa has become obvious from a study of the vast array of specimens collected since Bentham's work. Distinguished taxa, usually species, are often geographically isolated but they are usually not easily recognised due to their intricately interwoven characters. This is presumably why Bentham placed them in a "superspecies". He had too few specimens to enable the delimitation of the taxa recognised here.

Wakefield (1955) started to unravel this unwieldy complex when he segregated *H. australis* N.A.Wakef., *H. calycina* (DC.) N.A.Wakef. (first described as a species of *Pleurandra* Labill.) and *H. cistiflora* N.A.Wakef. Here three more peripheral species pertaining to the *Flora of South Australia* are described as a complete revision of the *H. stricta* complex will need much more research (Toelken, in preparation).

This paper is the author's sixth contribution on the taxonomy of *Hibbertia*. Previous papers were published in *Journal of the Adelaide Botanic Gardens*, volumes 16 (1995), 18(2) (1998), 19 (2000), 20 (2002) and 23 (2010).

The following key to all the South Australian taxa that would have been incorporated in Bentham's concept of *H. stricta* also includes *H. riparia* (R.Br. ex DC.) Hoogland.

Key to species and subspecies of the *H. australis*-, *H. riparia*- and *H. stricta* complexes in South Australia

1. Flowers sessile — if rarely with peduncle up to 14 mm then leaves and calyx glabrescent (small and scarcely visible to the naked eye) or glabrous
2. Axils of leaves with erect tuft of hairs 0.5–2 mm long and usually continued on both sides of the leaf base along the junction with branches; leaves and branches with straight simple and fascicled hairs *H. riparia*
- 2: Axils of leaves without or with tufts of erect hairs < 0.4 mm long; leaves and branches with fascicled hairs, rarely also with simple hooked ones
3. Large stellate hairs on the outer calyx lobes with unequally long bristles 3 to 8 times longer than base tomentum; small hairs on branches and calyx dense, erect-spreading with subequal arms *H. setifera*
- 3: Large stellate hairs on the outer calyx lobes with subequal branches up to 2 times longer than base tomentum; small hairs on branches, leaves and calyx sparse, spreading or if dense then with unequally long arms *H. devitata*
- 1: Flower stalk > 5 mm long
4. External surface of outer calyx lobes smooth (fig. 1D) and with dense cover of small fascicled hairs overtopped by scattered spreading larger ones often with basal tubercle but without lumpy projection of leaf tissue
5. Plants decumbent or scrambling; flowers terminal, becoming leaf-opposed along branches; hairs on upper leaf surface ± appressed, scattered to sometimes glabrescent *H. tenuis* Toelken & R.J.Bates
- 5: Plants erect to spreading, rarely with some decumbent branches; flowers terminal on terminal and axillary short shoots, rarely obviously leaf-opposed; hairs on upper leaf surface erect, usually dense but soon glabrescent *H. australis*

- 4: External surface of outer calyx lobes lumpy due to scattered, apparently stalked (fig.1C), large spreading fascicled hairs overtopping few scattered smaller ones *H. glebosa*
6. Bracts more than half the length of the outer calyx lobes, 5.5–7 mm long; leaves 0.6–0.8 mm wide *H. glebosa* subsp. *glebosa*
- 6: Bracts less than half the length of the outer calyx lobes, 4.3–5.2 mm long; leaves 1–2 mm wide *H. glebosa* subsp. *oblonga*

Terminology

The three new species, as well as morphologically similar species referred to in the discussion, all have strongly revolute leaf margins, so that “leaves above” here refers to that part of the upper (adaxial) leaf surface that is visible from above. The lower (abaxial) leaf surface is not visible except for the central vein, while the “undersurface” (Toelken 1998, 2000) is hidden between the revolute margins and the bulging central vein. “Leaves below” refers to the strongly revolute parts of the adaxial leaf surface and the central vein of the abaxial leaf surface.

Hair terminology follows concepts used in previous papers of this series and especially Toelken (2010).

A hypophyll, which is “a reduced or modified leaf towards the upper end of a shoot” (Jackson 1965) refers here mainly to the distinctly enlarged leaves below flower clusters in the *H. sericea* group (Toelken 2000).

In species of the *H. australis* group measurements of the stalk below the flowers combine both the variously elongated ultimate and penultimate internode referred to in other species of *Hibbertia* as pedicel and peduncle respectively. It is called a flower stalk to draw attention to the difference.

The distribution range of the species is cited in currently used regions as documented in the Flora of South Australia (Jessop & Toelken 1986) and Flora of Victoria (Walsh & Entwisle 1993–1999).

H. devitata and *H. setifera* of the *H. stricta* complex

H. setifera and especially *H. devitata* are two newly recognised species close to *H. stricta* s. str. from eastern Australia. *H. devitata* and *H. setifera* are considered to belong to the *H. stricta* complex on the basis of the presence of leaf-like bracts with revolute margins and the absence of well developed intrapetiolar tufts of hairs. *H. devitata* is only now described although specimens of it were already examined and cited by Bentham.

While de Candolle (1817) published both *Pleurandra riparia* R.Br. ex DC. and *P. stricta* R.Br. ex DC., J.D.Hooker (1855) considered the two species to be conspecific and included *P. stricta* in the synonymy of *P. riparia*. Bentham (1863) however, reversed the situation by including *P. riparia* in *Hibbertia stricta* the older name in *Hibbertia* following the Kew Rule rather than the present Principle of Priority of the International Code of Botanical Nomenclature (McNeil et al. 2006).

Hoogland (1974) made the new combination *Hibbertia riparia* (R.Br. ex DC.) Hoogland, pointing out that Hooker’s original choice must, according to Article 11 of the *International Code of Botanical Nomenclature* (Stafleu et al. 1972; this corresponds to Art 11.5 of the current Code: McNeil et al. 2006) be adhered to. Hoogland also considered “the type of *Pleurandra stricta* in the de Candolle herbarium in Geneva agrees in all respects with the species currently referred to as *Hibbertia australis* N.A.Wakef.” An examination of this specimen in Geneva by the author could clearly identify it and distinguish it from all other presently known species. Since it has sessile flowers and leaves and branches with small scattered fascicled hairs, it is not *H. australis*. Until a revision of the whole complex (Toelken, in preparation) has been completed it is not possible to finally delineate *H. riparia* and *H. stricta*, the oldest species in the group. Toelken (1996), realizing this, provisionally reverted to Bentham’s broad approach, but under the name of *H. riparia*, as Hoogland had correctly pointed out. The few taxa published here will not be affected by the final typification and delineation of the eastern Australian species *H. australis*, *H. riparia* and *H. stricta*.

Both J.D.Hooker (1855) and Bentham (1863) used in their respective taxonomies a var. *glabriuscula* (Art. 35.4 of the ICBN denotes them as varieties, as the authors did not indicate rank; McNeill et al. 2006). W.J.Hooker (1834) described *P. riparia* a *glabriuscula* based on five specimens collected by Gunn and Lawrence from Tasmania and this was adopted by J.D.Hooker (1855). However Chapman (1991: 1590) indicated that the Hookers’ var. *glabriuscula* seemed to represent the typical variety. If this is so then this would make this name illegitimate in this combination, but this would need to be resolved in a revision of *H. riparia* s. str. (Toelken, in preparation).

It is not clear from Bentham’s citations whether his “*H. stricta* a *glabriuscula*” was based on Hooker’s variety of *H. riparia*. While the Hookers’ two herbaria were the basis for much of Bentham’s work on the *Flora Australiensis*, he did not specifically mention the Gunn and Lawrence collections and made no reference to any of the four varieties described by the Hookers. It seems therefore that Bentham’s var. *glabriuscula* was intended to be a new taxon. The variety needs to be lectotypified on an eastern Australian specimen, preferably *Sieber 150* or *Sieber 151*, as Bentham (1863) cited them specifically and considered them part of the “commonest form”.

J.M.Black (1926, 1952) applied the name *H. stricta* var. *glabriuscula* to South Australian specimens. Wakefield (1955) stated: “In north-western Victoria (Dimboola, Lake Hindmarsh etc.) and in South Australia there are tiny desert forms which are smaller in all parts and with very little vestiture.” Varieties were not recognised by Hoogland (1974) when he returned the name to *H. riparia* and not by Jessop (1986) in his treatment in the *Flora of South Australia*. In both cases

H. stricta var. *glabriuscula* was treated as a synonym of *H. riparia*. Recognition of the South Australian taxon as a species was first made in the allocation by this author (Toelken 2005) of the phrase name *Hibbertia* sp. *Glabriuscula* (D.J. Whibley 9012). Unfortunately it was not possible to name the present species as *H. glabriuscula* in order to maintain a recognizable name for a very common plant in South Australia. This was thwarted by the naming of *H. glabriuscula* J.R. Wheeler (1994), a species from the northern wheatbelt areas of Western Australia.

Hibbertia devitata is delineated and finally named here after being recognised as distinct for more than 140 years. In contrast, the newly described *H. setifera* has a relatively stable nomenclatural history having been referred to either *H. stricta* or *H. riparia* in the past.

***Hibbertia devitata* Toelken, sp. nov.**

A H. stricta foliis brevioribus (rare longioribus quam 10 mm) veni centrale protruberante ovariisque tomentosis; a H. riparia sine pilis simplicibus parcipue in axillis foliorum lobisque calicorum cum cristis centralibus differt.

Type: South Australia, Carcama Conservation Park, E.N.S. Jackson 5669, 4.ix.1985 (holo.: AD; iso.: BRI, CANB, G, K, MEL, MO, NSW, NY, PERTH).

Hibbertia sp. *Glabriuscula* (D.J. Whibley 9012) Toelken in W.R. Barker et al., J. Adelaide Bot. Gard. Suppl. 1: 50 (2005).

Hibbertia stricta auctt. non (R.Br. ex DC.) F. Muell.: Tate, Fl. Extratrop. S. Austral.: 4, 205 (1890), p.p.; J.H. Willis, Handb. Pl. Victoria 2: 389 (1972), p.p.

Hibbertia stricta (R.Br. ex DC.) F. Muell. var. *glabriuscula* auctt. non Benth.: Benth., Fl. Austral. 1: 27 (1863), p.p. as for "Lake Hindmarsh, in Victoria"; J.M. Black, Fl. S. Austral. 3: 387 (1926); ed. 2, 3: 576 (1952) – non *H. glabriuscula* J.R. Wheeler, Nuytsia 9(3): 430 (1994).

Hibbertia riparia auctt. non (R.Br. ex DC.) Hoogland: Jessop in Jessop & Toelken, Fl. S. Austral. 1: 357 (1986), p.p.; Toelken in N.G. Walsh & Entwisle, Fl. Victoria 3: 312 (1996), p.p.

Shrublets up to 0.8 m tall, sparse to often much-branched, usually stiffly erect; branches with pronounced leaf bases continued in decurrent flanges, puberulous to glabrescent, rarely pubescent or tomentose. *Vestiture* very variable, persistent or wearing off to glabrous but usually remaining finely tuberculate, mainly with fascicled hairs on most parts of the plant and sometimes with interspersed hooked simple hairs particularly on the calyx; *on branches* sparse to dense, with short subequal fascicled hairs (3–5 (–7) spreading arms, often unequal, each often less than 0.1 mm) without basal tubercle; *on leaves above* sparse to glabrous, rarely pubescent, with short fascicled hairs (1–3 (–5) usually unequal arms), often reduced to a basal tubercle, but the hairs denser and with slightly longer arms on the flanks of the revolute margins, which are rarely overtopped by few hooked simple hairs; *on leaves below* sparse to dense with short fascicled hairs (3–5 (–8) usually subequal, rarely unequal arms), often with pronounced basal tubercle, but sometimes overtopped by scattered

larger fascicled hairs (12–15 subequal arms); *on bract* similar to but smaller than leaves; *on outer calyx lobes* outside sparse to dense with small (1–3 (–5) often unequal arms) grading into larger, often tubercled-based fascicled hairs (7–14 (–25) subequal arms), in local populations rarely overtopped with erect hooked simple hairs, inside usually dense with larger and smaller fine antrorse forked fascicled hairs (1, 2 or 3 arms) without tubercles on the upper third; *on inner calyx lobes* outside moderately dense to dense, rarely glabrous, with a cover of fine small fascicled hairs (1–3 (–6) spreading subequal arms) becoming gradually smaller towards the membranous margins, overtopped by few larger fascicled hairs (5–8 (–12) usually subequal arms) without tubercles and/or few hooked simple hairs mainly along the central ridge, inside glabrous. *Leaves* without tufts of hairs in the axils; *petiole* 0–0.7 mm long; *lamina* linear, rarely linear-lanceolate, (2.6–) 3.5–7 (–21.5) × (0.9–) 1–1.3 (–1.5) mm, bluntly acute to usually obtuse, abruptly constricted into the petiole, above slightly concave to almost flat, puberulous to often glabrescent, rarely pubescent, below with prominent central vein usually bulging over narrower revolute margins and puberulous to glabrescent. *Flowers* single, sessile or rarely with peduncle up to 14 mm (Port Lincoln), on terminal and lateral branches, often subtended by few bract-like leaves on fascicled axillary branches; *bracts* linear, leaf-like, 2.2–3.4 × 0.6–0.8 mm, usually less than half as long as outer calyx, with prominent central vein, puberulous. *Calyx* lobes subequally long; *outer calyx lobes* lanceolate, (5.4–) 6.2–6.7 (–7.3) × (1.8–) 2–2.5 (–2.8) mm, often slightly longer than the inner lobes, pointed and with distinct ridge often along the whole length, pubescent often overtopped by more or less hooked simple hairs; *inner calyx lobes* ovate to oblong-ovate, (5.2–) 6–6.5 (–7) × (3–) 3.2–3.5 (–3.9) mm, cuspidate to rounded, very slightly ridged mainly at the base, finely pubescent often overtopped by larger fascicled and/or ± hooked simple hairs. *Petals* (4–) 6–9 (–11.8) mm long, emarginate. *Stamens* (5–) 6–8 (–12) in a dense dorsal cluster with the central 1–2 (–3) stamens distinctly longer; *filaments* incurved and resting on ovary, almost free to connate for up to half their length; *anthers* 1.4–2.2 mm long, abruptly constricted apically and basally. *Pistils* 2; *ovaries* obovoid, each with 4–6 lateral ovules, pubescent, with styles attached to apex, erect and on either side of the anther bundle, with stigmas born well above anthers. *Seed* obovoid, 1.8–2 × 1.6–1.7 mm, dark brown to black; *aril* fleshy at the base and expanding into a fleshy rim on the lower third of the seed. *Flowering:* (June–) August–November. **Fig. 1A.**

Distribution and ecology: Widespread in a range of habitats varying from gravelly slopes to deep sandy soils and usually associated with dry scrub or open woodland, especially mallee, in Victoria (LMAL, MMAL, WAN, WIM) and South Australia (EP, NL, MU, YP, SL, KI, SE).

Conservation status. Since the species is widespread and recorded from several conservation parks it would

appear not to be a candidate for conservation status in South Australia.

Diagnostic features. *Hibbertia devitata* differs from typical forms of *H. stricta* in having shorter leaves (rarely more than 10 mm long) with a markedly bulging central vein and densely hairy ovaries.

It is also very similar to *H. riparia* with which it is often sympatric in the Southern Lofty, Kangaroo Island and South Eastern regions of South Australia and adjoining Victoria. *Hibbertia devitata* is, however, distinguished by: the absence of distinct tufts of long hair in the axils (intrapetiolar) of the leaves, present in *H. riparia*; occasional presence of hooked simple hairs on the leaves and especially the outer calyx, whereas straight simple hairs are common in *H. riparia*; a broad central leaf vein usually bulging well above the revolute margins as opposed to more or less touching the revolute margins; apically acute to pointed outer calyx lobes with a distinct central ridge on at least the upper half compared to bluntly acute and without ridge on the upper half; 1 (–3) longer central anther(s), inclining over and leaning on the ovaries between the styles as opposed to the similar number of erect stamens not touching the ovaries in *H. riparia*.

Some forms of *H. devitata* can be confused with *H. australis* and *H. glebosa*. *H. devitata* differs from the *H. australis* complex by: sessile flowers or if with stalk more than 5 mm long then plants glabrous or glabrescent, as opposed to with flower stalk more than 5 mm long and plants are hirsute to sparsely hirsute; all of its fascicled hairs particularly on the outer calyx are usually of more or less similar size, or the larger and smaller ones grade into one another, and are often mixed with simple hairs (distinctly larger hooked ones over smaller fascicled hairs particularly on the calyx) as compared to distinctly larger over smaller fascicled ones; one to several bracts which have a similar shape and revolute margins as the leaves, while only one bract with revolute margins is found in *H. australis*.

Variation. *Hibbertia devitata* is a very variable species. A number of forms are recognised by the prevalence of a single character in peripheral populations but these usually gradually grade into the main population. At this stage there is no evidence for hybridisation or introgression between such populations as has been observed in the *H. virgata* complex (Toelken, in preparation). The following discussion attempts to demonstrate that local characteristics and their variation in some populations could not be correlated with others and/or geography to allow taxonomic delineation.

1. Hooked simple hairs with or without shorter fascicled hairs are more or less common on calyx lobes particularly in populations from near Port Lincoln, the Adelaide Hills, South Eastern Region and western Grampians. In extreme cases they are associated with leaves recurved from the base. These leaves are also more or less grooved along the upper

surface and the slender flower buds have pointed outer calyx lobes. The fascicled hairs on the flanks of the leaves are sometimes reduced to what appear to be simple hairs, but occasionally a hair will show a rudimentary second arm at the base. Hooked simple hairs (apparently not fascicled) are sometimes even found on the flanks of the revolute margins of the leaves (*P.Batchelor 41*).

2. Another form somewhat morphologically similar to the above occurs in mallee or scrub on sandy soil with surface limestone on the south-eastern Eyre Peninsula (*R.J.Bates 6909*), southern Yorke Peninsula (*R.D.Hoogland 11848*) and north-western Kangaroo Island (*H.R.Toelken 9216*). The flowers are more or less stalked (up to 14 mm: *K.C.Holliday 83042A*), the calyx is glabrous to minutely hairy and plants have wiry branches, purple when young (*R.D.Hoogland 11848*), are often little-branched and have more or less spreading-recurved leaves and their apex is often acute (*R.J.Bates 6909* also with exceptionally long leaves up to 21.5 mm). However, in none of the three areas can one distinguish a single population recognisable by consistently linking any two of these characteristics, while some of these characters, such as glabrous leaves and calyx are also observed in other populations of the typical species (e.g. *P.J.Lang & P.D.Canty BS128-1902*, Mt Wedge). Some of the more woody plants might be confused with glabrescent forms of *H. riparia*, because the central vein of leaves is often not so prominently bulging above the revolute margins, as is typical for *H. devitata*. However, all the specimens are readily identifiable as *H. devitata* due to the prominent ridge on the outer calyx lobes, and absence of intrapetiolar tufts of hairs.
3. An extremely robust form particularly from the higher parts of the western Gawler Ranges (e.g. Scrubby Peak) has up to 12 stamens, and the larger fascicled hairs on the outer calyx lobes have 12–25 arms (*R.J.Bates 3355*; *E.H.Ising AD966040385*). Specimens from lower altitudes (e.g. *C.R.Alcock 4069*) exhibit characters that grade into those of the populations commonly found on the northern Eyre Peninsula.
4. The number of stamens varies from the usual six to eight to as high as twelve in some populations on northern Eyre Peninsula. The 1–2 (–3) central stamens have distinctly longer anthers which lean between the styles over the ovaries. In different populations the filaments vary from almost free to connate for up to half their length.
5. The outer calyx lobes vary in some populations from ovate (usually 3–5.5 mm long) to narrow-lanceolate (usually 5–8 mm long). Both types have a prominent central ridge more pronounced towards the apex. There are, however, herbarium specimens where the characteristic ridge is hardly visible, particularly in

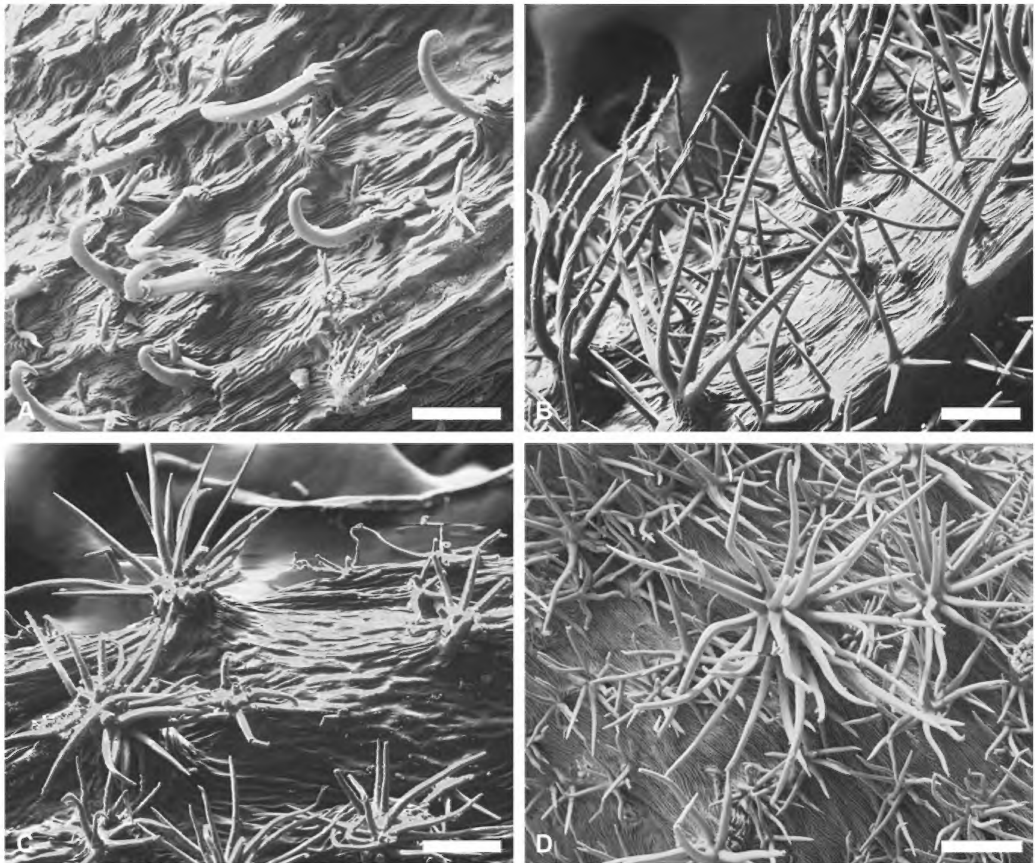


Fig. 1. Hairs on outer surface of outer calyx lobes. **A** *H. devitata*, small and larger fascicled hairs overtopped by hooked simple hairs; **B** *H. setifera*, smaller fascicled hairs overtopped by prominent larger coarse ones; **C** *H. glebosa* subsp. *glebosa*, very few small fascicled hairs overtopped by mainly scattered very large ones, which are often apparently stalked, because of a lumpy surface; **D** *H. australis*, dense small fascicled hairs overtopped by scattered distinctly larger ones on a more or less smooth surface. Scale bars: 100 μ m. — **A** *E.N.S.Jackson* 1635; **B** *H.R.Toelken* 9241; **C** *A.M.Ashby* 749; **D** *A.A.Munir* 5455. — Whole calyx lobes mounted on specimen holders and scanned uncoated using a JEOL Neoscope JCM-5000 Table Top SEM (Nikon, Tokyo) under low vacuum; accelerating voltage 15 kV.

the South-Eastern Region (*D.Hunt* 2043), or on the southern Eyre Peninsula (*C.R.Alcock* AD98819052).

Etymology. The species name is derived from ‘devitata’, Latin, ‘shunned’, an allusion to this species being long known from South Australia, but defying being named for 140 years.

Selection of specimens examined (ca. 750 seen)

VICTORIA. **D.E.Albrecht** 1155, 3 km into Red Bluff, 3.xi.1984 (MEL); *A.C.Beauglehole* 38171, 18 miles ESE Nelson, 2.ii.1972 (MEL); *C.French* MEL 35906, NW Lake Albacutya, ix.1887 (MEL); *R.D.Hoogland* 11870, 9 miles S Kaniva, 18.xi.1970 (MEL; CANB, K, L – n.v.); *M.E.Phillips* NBG612627, Lowan Sanctuary, near Kiata, 9.ix.1961 (MEL).

SOUTH AUSTRALIA. **EP:** *C.R.Alcock* 4069, Yardea homestead, 3.x.1972 (AD, CANB); *C.R.Alcock* AD 98819052, Council boundary between Tumbay Bay and Cleve, 16.ix.1965 (AD); *R.J.Bates* 3355, Scrubby Peak,

9.ix.1983 (AD); *R.J.Bates* 6909, 20 km SW Port Lincoln, 31.viii.1986 (AD); *J.S.Browne* MEL 35964, Port Lincoln, 1874 (MEL); *K.C.Holliday* 830424A, Wanilla Conservation Park, 17.vi.1983 (AD); *E.H.Ising* AD 966040385, N Minnipa, 13.ix.1938 (AD); *P.J.Lang & P.D.Canty* BS 128-1902, Mt Wedge, 17.ix.2003 (AD). **MU:** *K.Czornij* 369, Swan Reach, 17. ix.1971 (AD); *N.N.Donner* 286, Dingo Range, 31.viii.1961 (AD); *E.N.S.Jackson* 2360, Scorpion Spring National Park, 23.x.1973 (AD); *A.G.Spooner* 2581, 5 km S Monarto South, 9.x.1972 (AD). **YP:** *B.J.Blaylock* 618, 6 km SSE Moonta, 30.ix.1967 (AD); *B.Copley* 4153, SE Minlaton, 6.x.1973 (AD); *K.Czornij* 833, 25 km SW Warrooka, 14.ix.1974 (AD); *R.D.Hoogland* 11848, 2 mls NW Stansbury, 12.xi.1970 (AD; CANB, HBG, K, L, UC, NSW, UC – n.v.); *W.L.Quin* 9, 12 km S Urania, 14.viii.1979 (AD). **SL:** *P.Batchelor* 41, Kuitpa Forest, 2.5 km along Mingka Track, 21.xii.1988 (AD); *D.N.Kraehenbuehl* 630, The Pinery, Grange, 15.ix.1962 (AD); *B.Paton* 111, 18 km W Victor Harbour, 22.vi.1974 (AD); *B.M.Routley & D.M.Armstrong* BS117-761, 2.4 km

WNW Williamstown, 7.i.2000 (AD); *D.J.E. Whibley 1716*, Spring Mount, 23.xi.1966 (AD). **KI**: *R.J. Bates 61174*, Cape Borda, ix.2003 (AD); *P.J. Lang & A. Maguire NPKI 30525*, 7 km S Nepean Bay South, 13.xi.1989 (AD); *J.G.O. Tepper AD 97828177*, Mt Pleasant to Birchmore Lagoon, 6.iii.1886 (AD); *H.R. Toelken 9216*, 1.4 km southwards along Church Road, 16.x.1997 (AD); *P.G. Wilson 774*, 11 km SW Kingscote, 6.xi.1958 (AD). **SE**: *J.W. Green*, 2 miles N Keith, 23.8.1958 (AD); *R.D. Hoogland 11864*, Mt Misery, 17.xi.1970 (AD; A, B, CANB, G, HBG, K, L, MEL, NSW, OKLA, PERTH, UC, TNS – n.v.); *D. Hunt 2043*, SE Lucindale, 6.vi.1964 (AD); *E.N.S. Jackson 1635*, ca 4 km SE Nine Mile Well, 4.xi.1969 (AD); *E.N.S. Jackson 4616*, Talapar Conservation Park, 5.x.1982 (AD; NBG, NEU, NSU, NSW – n.v.).

***Hibbertia setifera* Toelken, sp. nov.**

Hibbertiae australi similis sed floribus et fructis plus minusve sessilibus et non recurvatis pilisque setaceis in calicis 4–8plo longioribus quam illis Hibbertiae australis; a H. devitata pilis fasciculatis magioribus et densioribus, foliis plus minusve planis, stylis affixis in paginis lateralibus ovariorum differt.

Type: South Australia, Kangaroo Island, near Kelly Hill Caves, *H. Eichler 15222* (holo.: AD; iso.: K, MEL, MO, NSW).

Hibbertia sp. *Glabriuscula* (*D.J. Whibley 9012*) Toelken in W.R. Barker et al., *J. Adelaide Bot. Gard. Suppl.* 1: 50 (2005), p.p.

Hibbertia stricta auctt. non (R.Br. ex DC.) F. Muell.: Benth., *Fl. Austral.* 1: 27 (1863), p.p., as for *F. Mueller MEL 35738*.

Hibbertia stricta (R.Br. ex DC.) F. Muell. var. *glabriuscula* auctt. non Benth.: J.M. Black, *Fl. S. Austral.* 3: 387 (1926), p.p.; ed. 2, 3: 576 (1952), p.p. – non *H. glabriuscula* J.R. Wheeler, *Nuytsia* 9(3): 430 (1994).

Hibbertia riparia auctt. non (R.Br. ex DC.) Hoogland: Jessop in Jessop & Toelken, *Fl. S. Austral.* 1: 357 (1986), p.p.; Toelken in N.G. Walsh & Entwisle, *Fl. Victoria* 3: 312 (1996), p.p.

Grey shrublets to 0.5 m tall, sparse to much-branched, erect to spreading, rarely decumbent; branches with prominent leaf bases continued in decurrent flanges, pubescent to tomentose. Vestiture persistent, with fascicled hairs often of similar size on the same organ; *on branches* ± dense with subequal short fascicled hairs (3–5 often subequal arms); *on leaves above* moderately dense with subequal erect-spreading fascicled hairs (3–5 often subequal arms) increasing in size towards the margins (apparently ciliate) with larger usually more robust hairs (7–12 often subequal arms) and usually obviously tubercled; *on leaves below* moderately dense with larger (9–15 subequal spreading to reflexed arms) over smaller fascicled hairs (4–7 reflexed arms); *on bracts* similar to leaves but hairs on marginal flanks more pronounced; *on outer calyx* outside very dense with a cover of smaller hairs (7–10 often unequal arms) overtopped by larger and very large fascicled hairs ((1–) 3–10 (–16) usually unequally long arms), inside moderately dense on upper half with spreading to antrorse arms; *on inner calyx* outside very dense with similar hairs (5–8 usually subequal reflexed arms) overtopped by larger and more robust hairs (5–10 often

unequal arms) mainly restricted to the central ridge, inside usually glabrous. *Leaves* with short, or rarely, without tuft of hairs in the axils; *petiole* 0–0.6 mm long, often indistinct; *lamina* linear-oblongate to -elliptic, (3.2–) 4–7 (–9.4) × 1.1–1.4 (–1.6) mm, cuneate base, rounded apex, above flat to slightly concave and sparsely hirsute, below with broad central vein slightly bulging above and abutting revolute margins, pubescent, rarely hirsute. *Flowers* single, sessile or subsessile up to 4 mm, on mainly long shoots, rarely on axillary short shoots; bracts linear-elliptic, leaf-like, 3.3–4.4 × 1–1.2 mm, about two-thirds as long as calyx, with broad central vein flattened, pubescent. *Calyx lobes* subequally long; *outer calyx lobes* lanceolate-oblong, 5.2–5.7 × (1.7–) 1.8–2.1 mm, acute with ridge often partially obscured by bristles, outside coarsely hirsute over tomentose, inside sparsely hirsute to pubescent; *inner calyx lobes* ovate-oblong, 5.2–5.6 × 2.9–3.2 mm, acute to cuspidate, tomentose and with dense bristles along the central ridge. *Petals* 4.3–6 mm long. *Stamens* (8) 9 in dorsal cluster; *anthers* subequal 1.4–1.6 mm long. *Pistils* 2; *ovaries* ovoid-compressed, with 4–6 ovules, with styles attached to dorsal upper side, erect on either side of the stamens and small stigma above anthers. *Fruit* erect. *Seeds* obovoid, 1.6–1.8 × 1.3–1.4 mm, black; *aril* cup-shaped with fleshy base. *Flowering*: mainly June–December. **Fig. 1B.**

Distribution and ecology. Usually locally abundant on more or less sandy flats or on laterite in scrub or mallee-vegetation in Kangaroo Island, but also more rarely recorded from south-eastern South Australia and adjoining Victoria (LMAL, MMAL).

Conservation status. Locally common in Kangaroo Island (*B. Overton et al. NPKI 20136*) where it is conserved in several parks, but rarely recorded from the mainland of South Australia and Victoria with one specimen from each Scorpion Springs National Park and Wyperfield National Park respectively.

Diagnostic features. Superficially *H. setifera* resembles species of the *H. australis* complex by its almost flat lower leaf surface with a very thick central vein scarcely higher than the touching revolute margins, by the erect to spreading hairs on vegetative organs and especially by the distinctly larger fascicled hairs overtopping the tomentum on the calyx. However, *H. setifera* differs from *H. australis* by its sessile/subsessile flowers, erect fruits and, most importantly, the leaf-shaped bracts, all of which place *H. setifera* closer to *H. devitata* in the *H. stricta* complex.

The habit of *H. setifera* resembles that of *H. devitata*. However *H. setifera* is not only distinguished by the size of the bristle-like arms of the robust fascicled hairs on the outer calyx, but also by a tendency for all hairs in all parts to have longer and more arms than any found in the many forms of *H. devitata*. The latter has, however, usually a distinctly convex lower surface of the leaves, while they are more or less flat in *H. setifera* as the

central vein is only slightly bulging and therefore more or less flush with the revolute margins.

Shrubs of *H. setifera* are of a similarly grey appearance to those of *H. crinita* Toelken because of the presence of the bristle-like arms of the fascicled hairs on the calyx and the longer hairs on the distal leaves below the flowers. *Hibbertia setifera* differs, however, by single terminal flowers not surrounded by broader specialised leaves (hypsophylls) different from cauline leaves, the outer calyx lobes are without recurved margins, the flanks of the leaves lack simple hairs and the leaf undersurface is not visible between the revolute margins and the central vein. Similarly *H. setifera* is distinguished from *H. platyphylla* subsp. *platyphylla* by its leaves lacking any visible undersurface between the central vein and the revolute margins, by the central vein protruding above the leaf apex, and by the coarse hairs on the leaves and calyx commonly being fascicled.

Variation. Plants from Kangaroo Island usually have particularly long (up to 0.6 mm long) and coarse bristles on the calyx. These bristles are less prominent or in a few cases absent from a few flowers and present on others of the same plant from the South-Eastern Region of South Australia (*N.N.Donner 8471*) and Victoria (*D.Parkes MEL 556718*).

However, two specimens (*P.Coulls 19, M.C.O'Leary 2107*) from Kangaroo Island have shorter long hairs (0.2–0.3 mm and just longer than the tomentum) on the calyx, but are placed here, because of their sessile flowers and distinctly larger hairs on the flanks of the distal leaves in particular.

Similarly the lateral style attachment of some other specimens from the mainland is less obvious. But specimens of *H. setifera* stand out throughout the range of the species on account of their larger and denser fascicled hairs, which become even larger on distal leaves below flowers.

Note. A specimen, *F.Mueller MEL 35738*, from “Murray Desert” was seen and cited by Bentham (1863) under *H. stricta* in general, while specimens of *H. divitata* are mentioned under *H. stricta* var. *glabriuscula*.

Etymology. The specific epithet ‘seti-fera’, Latin, ‘bristle-bearing’, in allusion to the characteristic long bristles particularly on the outer calyx lobes.

Selection of specimens examined (36 seen)

VICTORIA. *R.Filson 7467*, 11 miles S Murrayville, 25.ix.1965 (MEL); *F.Mueller MEL 35738*, Murray Desert, s.d. (MEL); *D.Parkes MEL 556718*, Wyperfeld National Park, 19.x.1985 (MEL).

SOUTH AUSTRALIA. **KI:** *P.Coulls 19*, Vivonne Bay, 1.v.1983 (AD); *M.C.O'Leary 2107*, D'Estrees Bay, 15.ix.1990 (AD); *F.Mowling 77*, Hundred of Menzies, ix-x.1980 (AD); *B.M.Overton 1122*, 1.25 km W Point Ellen parking bay, 3.xii.1989 (AD) *A.Robinson et al. NPKI 10626*, 7.xi.1989 (AD); *J.G.O.Tepper 39*, Western Cove, 19.xi.1886 (AD); *H.R.Toelken 9241*, Highway near Vivonne Bay, 17.x.1997 (AD); *J.R.Wheeler 1371*, 6 km N Rocky River Homestead, 23.x.1968 (AD); **SE:** *P.Batchelor 156*, off Mt Rescue road,

19.xii.1995 (AD); *J.Carrick 3447*, Scorpion Spring National Park, 24.x.1973 (AD); *N.N.Donner 8471*, 3 km W Lucindale, 1.ix.1981 (AD); *M.C.R.Sherrard 1121*, 50 km S Pinnaroo, 29.viii.1961 (AD); *P.G.Wilson 2100*, 70 km N Bordertown, 29.viii.1961 (AD).

H. australis complex, including *H. glebosa*

Hibbertia australis was also included in the very broadly delineated *H. stricta* complex of Bentham (1863). In the absence of any revisions, subsequent treatments in local floras have followed Bentham's account, apart from that of Wakefield (1955), where he indicated that it too might be a species complex.

The *H. australis* complex is mainly distinguished from the *H. stricta* complex by its more or less stalked flowers and recurved fruits. This combination of characters is also found in the *H. cistoidea* complex (also included in *H. stricta* by Bentham, 1863) but that complex is confined to the northern parts of the eastern states and is further distinguished from the *H. australis* complex by its very broadly ovoid buds with ovate calyx lobes as well as a usually distinctly recessed central vein on the abaxial leaf surface (Toelken, in preparation).

Furthermore after the flowers are fertilised, veins at the base of the calyx lobes become more prominent and the whole base expands, in contrast to those of the *H. stricta* complex which have more or less pronounced distal ridges on the calyx. After the fruit and the calyx have been shed the flower stalks retain a very much bulging apex and this is another characteristic of the whole *H. australis* complex.

The distinctly larger fascicled hairs over the main cover of smaller ones, particularly on the calyx lobes, is another characteristic of the *H. australis* complex. A range of hairs of intermediate length is commonly associated with other groups of Bentham's *H. stricta*. Furthermore, the bracts of the *H. australis* complex differ from the leaves in shape and in the lack of a revolute margin, though rudiments of the latter can be recognised on some plants.

Hibbertia glebosa Toelken, sp. nov.

A H. australe pilis fasciculatis grandibus semotis et ut videtur stipibus multicellularibus in lobis externis calicis folisque et lobis externis calicis glebosis ubi exisiccatis differt.

Type: South Australia, Mount Crawford, *R.J.Bates 35528*, 23.xii.1993 (holo.: AD; iso.: CANB, K, MEL, MO).

Hibbertia stricta var. *canescens* Benth., Fl. Austral. 1: 27 (1863), p.p.; J.M.Black, Fl. S. Austral. 3: 387 (1926), p.p.; ed. 2, 3: 576 (1952), p.p.

Hibbertia australis auct. non N.A.Wakef.: N.A.Wakef., Victorian Naturalist 72: 121 (1955), p.p.

Hibbertia stricta auct. non (R.Br. ex DC.) F.Muell: J.M.Black, Fl. S. Austral. 3: 387 (1926), p.p.; ed. 2, 3: 576 (1952), p.p.; Hoogland, Kew Bull. 29: 155 (1974), p.p.; Jessop in Jessop & Toelken, Fl. S.Austral. 1: 358 (1986), p.p.

Shrubs to 0.5 m tall, at first sparse but becoming much-branched, spreading to decumbent; branches

with prominent leaf bases not continued into decurrent flanges, sparsely hirsute, rarely pubescent. *Vestiture* often persisting only for short time, with larger fascicled hairs over smaller ones being often reduced to simple hairs; *on branches* sparse to locally dense, with a range of small to larger spreading fascicled hairs with tubercle (5–8 subequal arms) with or overtopped by larger spreading, rarely apparently stalked fascicled hairs with basal tubercle or ± stalked (12–16 often unequal arms); *on leaves above* sparse or scattered and wearing off soon, with subequal erect fascicled hairs (1 or 2, rarely 3 arms on flanks, usually subequal and 0.2–0.4 mm long); *on leaves below* sparse or scattered, with mainly larger recurved fascicled hairs often with basal tubercle (5–8 subequal arms), occasionally overtopped, mainly on the central vein, by usually apparently stalked, very large spreading to recurved fascicled hairs (9–18 often unequal arms); *on bracts above* sparse to dense, with spreading to antrorse subequal fascicled hairs, below sparse to scattered, with small to few larger, often tuberculate (rarely stalked) spreading fascicled hairs; *on outer calyx lobes* outside scattered to sparse, with mainly large apparently stalked fascicled (5–12 often unequally long arms), over rarely few scattered small fascicled hairs without basal tubercle (3–5 subequal arms), inside sparse to dense, with antrorse ± appressed fascicled hairs (2–4 subequal branches); *on inner calyx lobes* outside usually with a dense cover of small almost appressed fascicled hairs without tubercle (3–6 subequal or unequal reflexed arms) overtopped by scattered larger spreading fascicled hairs with basal tubercle or apparent stalk (8–15 arms), sometimes absent on innermost lobes, inside glabrous, shiny. *Leaves* with short, or without, tuft of hairs in the axils; *petiole* 0.2–0.5 mm long; *lamina* linear to oblong-lanceolate, (3.6–) 4.5–7 (–8.5) × (0.5–) 0.6–1.4 (–1.8) mm, bluntly acute becoming obtuse, abruptly constricted into petiole, above scarcely depressed along the central vein and sparsely pilose, below with broad central vein flush with or slightly bulging above abutting revolute margins and sparsely hirsute. *Flowers* single, stalked and usually obviously leaf-opposed on distal terminal and axillary branches; *stalk* (peduncle and pedicel) (4.4–) 5–15 (–24.5) mm long; *bracts* on upper third of stalk, linear-elliptic or –lanceolate, (4.3–) 5–6 (–6.5) mm long, incurved, usually pointed. *Calyx lobes* unequally long; *outer calyx lobes* lanceolate, (5.1–) 5.5–6.5 (–7.3) × (2.2–) 2.3–2.4 (–2.6) mm long, usually longer than inner lobes, acute or usually drawn into a point, ridged towards the apex, outside coarsely but sparsely hirsute becoming lumpy when dry, inside pubescent towards the apex; *inner calyx lobes* elliptic-oblong, rarely lanceolate-oblong, (4.4–) 5–5.8 (–6.2) × (2.5–) 2.6–2.8 (–3) mm, obtuse or mucronate, ± ridged from base to apex, outside sparsely tomentose and sometimes shortly bristled along ridge, inside glabrous, shiny. *Petals* obovate, 6–11 mm long, scarcely emarginate. *Stamens* 6 or 7 (–10) in dorsal cluster; *filaments* ± basally connate; *anthers* obloid,

1.6–1.9 mm long, abruptly constricted above and below. *Pistils* 2; ovaries broadly obovoid and ± laterally compressed, with – ovules, tomentose, style attached to the dorsal side, erect on either side of the anthers with stigmas well above the anthers. *Fruits* recurved. *Seeds* obovoid to comma-shaped, 2.4–2.6 × 1.7–1.8 mm, black or brown; aril cup-shaped with fleshy base.

Distribution. Two subspecies, both of them confined to South Australia, one (subsp. *glebosa*) from the Mt Lofty Ranges and the other (subsp. *oblonga*) from Kangaroo Island.

Diagnostic features. This species is easily distinguished from *H. australis* by its apparently stalked fascicled hairs (cf. fig. 1C & D) mainly on the central vein on the abaxial surface of the leaves and particularly the outer surface of the outer calyx lobes. The tissues below the hairs do not shrink as much as the glabrous areas in between, so that the leaves and calyx attain a lumpy appearance in dried material. The hairs on the leaf upper surface are few and scattered, many of them with [only] 1 or 2 arms, 0.2–0.4 mm long.

Notes. The apparently stalked hairs of this species are very large fascicled hairs with a distinct tubercle which is also visible on fresh material but becomes elevated on a hump due to uneven drying of the tissues below (cf. Fig. 1C & D). Populations of *H. glebosa* show variation in hair size and density particularly of the calyx lobes.

In the Mt Lofty area, the hairs of plants from Tea Tree Gully populations are usually smaller, but they are similarly scattered as on plants from the rest of the region. In addition to being smaller, particularly on the upper leaf surface, the hairs of the Tea Tree Gully populations are easily distinguished by only one or two arms in comparison to those with up to five arms in populations of *H. australis* from the Para Wirra area to the Barossa Valley. Similar shorter but very dense hairs with more arms are found on specimens of the closely related species, *H. australis*, from the South-Eastern Region (SE) of South Australia and southern Victoria.

Etymology. ‘Glebosa’, Latin for ‘lumpy’, alludes to the uneven surface of particularly the outer calyx lobes and is accentuated when dried which leads to a “bumpy” appearance (see above).

H. glebosa subsp. *glebosa*

Hibbertia stricta var. *canescens* Benth. Fl. Austral. 1: 27 (1863), p.p.; J.M.Black, Fl. S. Austral. 3: 387 (1926), p.p.; ed. 2, 3: 576 (1952), p.p. (see note below).

Hibbertia stricta var. *stricta* auct. non (R.Br. ex DC.) F.Muell.: J.M.Black, Trans. & Proc. Roy. Soc. South Australia 49: 274 (1925), p.p.; Fl. S. Austral. 3: 387 (1926), p.p.; ed. 2, 3: 576 (1952), p.p.

Hibbertia australis auct. non N.A.Wakef.: N.A.Wakef. Victorian Naturalist 72: 121 (1955), p.p.; H.Eichler, Suppl. J.M.Black’s Fl. S. Austral. 226 (1965), p.p. (only as to specimens from SL).

Hibbertia stricta auct. non (R.Br. ex DC.) F.Muell.: J.M.Black, Fl. S. Austral. 3: 387 (1926), p.p.; ed. 2, 3:

576 (1952), p.p.; Hoogland, Kew Bull. 29: 155 (1974), p.p.; Jessop in Jessop & Toelken, Fl. S. Austral. 1: 358 (1986), p.p.

Shrubs spreading to decumbent. *Leaves* (4.2–) 5–7 (–8.5) × (0.5–) 0.6–0.7 (–0.8) mm or 7–10 (–12) times longer than broad. *Bracts* 5.5–6 (–6.8) mm long. *Outer calyx lobes* usually drawn into a point apically and longer than inner ones. *Flowering*: mainly August–December. **Fig. 1C.**

Distribution and ecology. Locally frequent on sandy clay or loam in open woodland, but confined to Mount Lofty Ranges, South Australia (SL).

Conservation status. Locally common and represented in several conservation reserves in the Mt Lofty Ranges.

Variation. Although plants of subsp. *glebosa* have slightly smaller hairs in the populations to the north-east of Adelaide in areas such as Tea Tree Gully, the hairs are sparse and those on the upper leaf surface have one or two, rarely three arms. In addition, the dried specimens show the typical humps on which the large, often apparently stalked fascicled hairs are situated.

Notes. Bentham's concept of the *H. australis* group can only be deduced from his description of *H. stricta* var. *canescens*, as he did not cite any specimens directly referable to this species complex. Whether he had seen a specimen of *H. glebosa* is unknown. The following annotation by Bentham on a specimen of *H. australis* (R. Brown [J.J. Bennett 4872] Arthurs Seat (BM!)) could be indicative of the confused concept of *H. stricta* held at the time: "Hibbertia (Pleurandra) considered by Mueller as one of the varieties of *H. stricta* but seems to me a variety of his *H. humifusa*".

The ambiguity increased as Black (1926, 1952) obviously recognised that the floral stalk length varied as he noted under *H. stricta*: "When the peduncles are long there is usually a small leafy bract some distance below the calyx." However, he never used this character to divide *H. stricta*, but seems to have heavily relied on the denseness of the tomentum. He included specimens of *H. glebosa* and *H. australis* as well as some forms of *H. devitata* in his interpretation of *H. stricta* var. *glabriuscula*, while other more hairy specimens he studied were identified in his handwriting as *H. stricta* var. *canescens* (e.g. *J.M.Black s.n.*, 28.viii.1920). But his cited distribution range of the latter variety, "Murray lands and Flinders Range" shows that he also included here specimens of *H. crinita* Toelken (Toelken 2000, p.9) of the *H. sericea* group.

Selection of specimens examined (c. 75 seen)

SOUTH AUSTRALIA. **SL:** *A.M.Ashby* 749, Blackwood, 27.ix.1941 (AD); *R.Bates* 62796, Watts Gully Woodland Reserve, vi.2004 (AD); *J.M.Black s.n.*, National Park Belair, 28.viii.1920 (AD 97044021); *B.J.Blalock* 2875, Sturt Gorge Recreation Park, 19.viii.2001 (AD); *B.J.Blalock* 2975, Birri Track, 12.x.2001 (AD); *N.N.Donner* 857B, Ansteys Hill, 14.ix.1963 (AD, CANB); *R.D.Hoogland* 11855, Upper Hermitage, 13.xi.1970 (AD; CANB, L – n.v.);

D.N.Kraehenbuehl 591, near Highbury Hotel, 15.viii.1962 (AD; CANB – n.v.); *T.J.Smith* 2162, Hope Valley Reservoir, 28.viii.1969 (AD); *J.G.O.Tepper* 279, Coromandel Valley, 9.xi.1881 (AD); *D.J.E.Whibley* 7117, Angoves Scrub, Tea Tree Gully, 8.vii.1980 (AD).

H. globosa subsp. *oblonga* (J.M.Black) Toelken, *comb. et stat. nov.*

Hibbertia stricta var. *oblonga* J.M.Black, Trans. & Proc. Roy. Soc. South Australia 49: 274 (1925); Fl. S. Austral. 3: 387 (1926); ed. 2, 3: 576 (1952) – non *H. oblongata* R.Br. ex DC., Syst. Nat. 1: 431 (1817). — **Type:** South Australia, Kangaroo Island, Ravine [des Casoars] Creek, *H.H.D.Griffith s.n.*, x.1918 (holo.: AD; iso.: K, MEL – n.v.).

Hibbertia sp. *Humilis* (*H.R.Toelken* 9196) Toelken in W.R.Barker et al., J. Adelaide Bot. Gard. Suppl. 1: 50 (2005).

Hibbertia australis auctt. non N.A.Wakef.: N.A.Wakef., Victorian Naturalist 72: 121 (1955), p.p.; H.Eichler, Suppl. J.M.Black's Fl. S. Austral. 226 (1965), p.p. (only as to specimens from KI).

Hibbertia stricta auctt. non (R.Br. ex DC) F.Muell.: Hoogland, Kew Bull. 29: 155 (1974), p.p.; Jessop in Jessop & Toelken, Fl. S. Austral. 1: 358 (1986), p.p.

Shrubs with rigid spreading branches. *Leaves* 3.5–4.5 (–5.9) × 1–1.5 (–1.9) mm or 3–5 times longer than broad. *Bracts* 4.3–5 (–5.2) mm long. *Outer calyx lobes* acute and more or less as long as inner ones. *Flowering*: September, October.

Distribution and ecology. Confined to the western end of Kangaroo Island where it is very local on sandy clay or laterite near swamps or creeks, or in ravines in open woodland.

Conservation status. Locally frequent (*Toelken* 9196), but conserved in Flinders Chase National Park.

Notes. The apparently stalked fascicled hairs of subsp. *oblonga* are often not as pronounced as in the case of subsp. *glebosa*, but it is nevertheless clear from the overall vestiture that subsp. *oblonga* must be connected to *H. glebosa* rather than the widespread *H. australis*.

The leaf-opposed flowers are clearly visible in subsp. *oblonga*, while their position is not always clear in subsp. *glebosa* as its branches are often considerably fascicled below the flowers.

Typification. Wakefield (1955) acknowledged that var. *oblonga* of Black (1925) was different but did not elevate it to species level "firstly because Black's type material is abnormally small, and secondly to avoid confusion with the epithet *oblongata* which is in use in the genus". Although the type specimen is small, subsp. *oblonga* is easily distinguished by the characteristics used here. Other specimens, such as *Toelken* 9196 from a similar locality, illustrate a greater range of variation.

Specimens examined

SOUTH AUSTRALIA. **KI:** *B.M.Overton* 2569, Berrymans Road, W North Coast Road, 26.ix.1995 (AD); *H.R.Toelken* 9196, along Shackle Road, upper Ravine des Casoars, 15.x.1997 (B, CANB, K, MEL, MO, PERTH).

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